

- 6 -

REMARKS

Appreciation is expressed for the Examiner's withdrawal of: (i) the rejection of claim 16 under 35 USC 112, second paragraph, as being indefinite; and (ii) the provisional rejection of claims 16, 17, 18, 20, and 26 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of copending Application Ser. No. 10/832,500.

Applicant's invention, as delineated by present claims 16-20, 26-27, and 29-30, provides an improved gypsum board for use in building construction and to a process for its manufacture; and more particularly, to a gypsum board having a gypsum matrix and a glass fiber mat disposed within the gypsum matrix before the board is cured. The glass fibers in the mat are coated with a silane-based sizing composition. Said sizing composition includes both a hydrophobic moiety, which promotes adhesion of the sizing composition to the glass fibers, and a hydrophilic moiety that interacts with water present in the gypsum mix during board fabrication. The presence of the mat sized with this composition is operative to increase strength, flexure resistance and nail pull out resistance of the gypsum board. In preferred embodiments, the silane based sizing composition comprises a plurality of silane molecules having multi branched chains providing cross-networking that further enhances the efficacy of the reinforcement to improve the mechanical properties of the claimed gypsum board, including those aforementioned.

Claims 1-15, 23-25, 28, 31, and 32 stand withdrawn from consideration as being directed to a non-elected invention and/or species.

- 7 -

Claim 27 was rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. In particular, the Examiner has alleged that there is no clear antecedent basis for a pseudo polymer network. Claim 27 has been amended to call for the plurality of silane molecules having multi branched chains to be crosslinked with a T type cross link to form a pseudo polymer network that hardens during gypsum cure. It is respectfully submitted that any indefiniteness of claim 27 has thereby been obviated, and that amended claim 27 satisfies the statutory requirements of 35 U.S.C. §112, second paragraph, by particularly pointing out and distinctly claiming the subject matter which applicant regards as the invention. It is further noted that claim 28, although currently standing withdrawn, has been similarly amended to eliminate any indefiniteness therein.

Accordingly, reconsideration of the rejection of claim 27 under 35 USC 112, second paragraph, as being indefinite is respectfully requested.

Claims 16-20, 26-27, and 29-30 were rejected under 35 USC 103(a) as being unpatentable over US Patent 4,645,548 to Take et al. in view of US Patent 3,948,673 to Chase et al.

Take et al. discloses a process for producing a non-combustible gypsum board, the process being characterized by the preparation of a mixture consisting of a powdery gypsum, a definite amount of fibers and a definite amount of a caking retarder, along with the necessary water. The powdery gypsum in turn consists of 50 to 95 parts by weight of a hydrating gypsum and 5 to 50 parts by weight of gypsum dihydrate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$).

Chase et al. provides glass fibers sized with water soluble polymeric compositions to maintain strand integrity during process and to induce complete filamentization of the glass fibers from a bundle during blending and mixing of the glass fiber bundle with an aqueous medium.

- 8 -

The Examiner has alleged that Take et al. teaches the claimed gypsum board comprising a gypsum matrix having a top and bottom, wherein the gypsum matrix is said to be of the type contemplated by claims 18 and 19. She has further alleged that Take et al. teaches the addition of glass fibers, but has admitted that there is no specific teaching of silane-coated glass fibers disposed in a non-woven mat. Accordingly, she has combined Chase et al., particularly citing the disclosure at col. 1, lines 6-12 that the treated fiber may be used with gypsum in an aqueous solution.

The Examiner has further contended that the Chase sizing composition comprises a hydrophobic moiety and a hydrophilic moiety, and may further contain a silane, as required by present claim 16. In support, she has cited col. 8, lines 26-27 and Examples V and VI. Applicant respectfully notes Chase's disclosure that "Coupling agents such as organo silanes or chrome complexes, are not required for the sizing of this invention, although they may be included therein." Col. 8, lines 26-28.

Applicant respectfully submits that Chase falls far short of disclosing what the Examiner purports. Significantly, none of the Examples, including Examples V and VI to which the Examiner pointed, include any silane based polymer. Accordingly, none of the species disclosed by Chase can possibly be argued to disclose the requirement of claim 16 that requires that the "hydrophobic moiety function[] to cause said silane-based sizing composition to adhere to said glass fibers." While Chase may contemplate a sizing formulation that includes a silane coupling agent, applicant maintains that Chase clearly does not contemplate a formulation that is silane-based, as further recited by claim 16. Applicant also maintains that the Examiner has not adduced any motivation to modify any silane composition provided by Take et al. to include the hydrophobic and hydrophilic moieties recited by claim 16, even in light of the Chase et al. reference.

- 9 -

More specifically, applicant maintains that the Examiner's statement that "the inclusion of polymethylsiloxane in the sizing composition of the prior art, is no more than a preferential selection of one silane from among many being selected for its art recognized purpose" does not satisfy the requirement articulated by the Supreme Court's decision in *KSR v. Teleflex*, 127 S. Ct. 1727; 2007 U.S. LEXIS 4745; 75 U.S.L.W. 4289 (2007) (2007) for a specific analysis. In particular, the court held that there must be an explicit analysis to establish the factual determinations needed for the traditional test for obviousness required under *Graham v. John Deere Co.*, 383 U.S. 1, 14, 17-18, 86 S. Ct. 684, 15 L. Ed. 2d 545, 148 USPQ 459, 465, 467 (1966). See also *In re Lee*, 277 F.3d 1338, 1344-45, 61 U.S.P.Q.2d 1430, 1435 (Fed. Cir. 2002) (finding that reliance on "common knowledge and common sense" did not fulfill the PTO's obligation to cite references to support its conclusions as PTO must document its reasonings on the record to allow accountability and effective appellate review).

The foregoing Examiner's statement addresses, at best, a small part of the subject matter delineated by claim 16. Even less does it address the preferred implementations recited by dependent claims 17-20, 26-27, and 29-30.

For example, nothing in the present Office Action addresses the requirement of claim 26 that the silane molecules have multi-branched chains, the crosslinking of claim 27, or the polymeric network of claim 30. Absent such specificity, it is submitted that the Office Action does not comply with *KSR*.

Applicant respectfully observes that claims 23-25 and 28 stand withdrawn in view of applicant's election of the species of claims 26 and 27, made in the response under 37 CFR 1.111 entered July 7, 2006. In that response to the restriction and election requirements set forth in the Office Action dated June 16, 2006, applicant elected the invention designated as

- 10 -

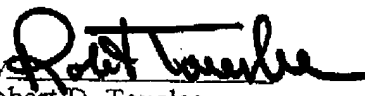
invention designated as Group II (claims 16-30) and, within that Group II, further elected the species of claims 26 and 27 for prosecution on the merits.

It is respectfully submitted that present independent claim 16 is generic to claims 23-25 and 28, which depend directly or indirectly therefrom. Claims 23-25 all depend directly from claim 16. Claims 23-24 recite preferred hydrophobic and hydrophilic moieties, respectively, while claim 25 calls for a silane-based sizing composition that comprises a plurality of silane molecules having single or cross linked polydimethylsiloxane chains. Claim 28 depends from claim 16 through intervening claim 26, and recites a preferred form of cross linking.

Inasmuch as amended claims 16 and 26 are submitted to be patentable over the art of record, claims 23-25 and 28 are also submitted to be patentable for at least the same reasons. Under the provisions of MPEP 821.04, applicant thus respectfully requests rejoinder and examination of claims 23-25 and 28 on the merits, and their allowance.

In view of the amendment of claims 16, 27, and 28 and the foregoing remarks, it is submitted that the application, as now presented, is in condition for allowance. Accordingly, reconsideration of the rejection of claims 16-20, 26-27, and 29-30; rejoinder and examination of presently withdrawn claims 23-25 and 28; and allowance of the application, as delineated by amended claims 16-20, 26-27, and 29, together with presently withdrawn claims 23-25 and 28, are respectfully requested.

Respectfully submitted,

By 
Robert D. Touslee
Reg. No. 34,032
(303) 978-3927